


Received 30 June 2010; accepted in revised form 21 October 2010

Use of NSAIDs for osteoarthritis amongst older-aged primary care patients: engagement with information and perceptions of risk

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Abstract

Background: non-steroidal anti-inflammatory drugs (NSAIDs) are used commonly to treat osteoarthritis in older patients.

Objective: to explore the understandings of risk that older-aged primary care patients have in the context of the use of oral NSAIDs to treat osteoarthritis.

Method: semi-structured interviews were conducted with 15 patients who were recruited from four general practices located in Sydney, Australia. Patients were aged at least 65 years and were currently taking, or in the past 2 years had taken, an NSAID for osteoarthritis. Emergent themes were identified from the transcripts and were compared within and across transcripts to develop more abstract concepts.
Results: patients demonstrated three key ‘modes of disengagement’ from medication-specific risk information, each of which could also be a mode of modulating a sense of danger and each of which would demand a unique clinical response. These were: ‘transference of responsibility’—transferring the responsibility to their GP, ‘general versus specific risk’—considering the risk of taking medicine in general as opposed to the specific risk of taking an NSAID, and ‘personal immunity’—some patients with a long history of NSAID use without apparent toxicity believed they were, therefore, not at risk of future adverse effects, while a few patients believed they were immune to adverse effects of drugs in general.

Conclusion: there is a need for greater recognition of these ‘modes of disengagement’/‘hazard modulation’ in order to attain a clinical response leading to safer, more effective and more ethical use of medicines.

Keywords: non-steroidal anti-inflammatory drugs, osteoarthritis, risk perception, qualitative research, elderly

Introduction

Osteoarthritis (OA) is a common cause of arthropathy and functional decline in older people [1]. Both selective and non-selective non-steroidal anti-inflammatory drugs (NSAIDs) are used commonly to treat the symptoms of OA [2]. NSAIDs can be administered topically or orally [3]. Adverse effects associated with the use of these drugs, particularly when administered orally, include gastrointestinal ulceration, myocardial infarction, hypertension, cardiac failure and renal impairment [4, 5]. Guidelines on management of OA suggest that oral NSAIDs are best used in low doses and after a trial of non-pharmacological treatments and paracetamol and weight loss (for mild to moderate OA) and/or topical NSAIDs [5, 6].

Clinicians and policy-makers with an interest in the quality use of medicines aspire to patients understanding both the benefits and risks of medicines to ensure that patients can make informed decisions and use medications safely [5, 7]. However, people often resist information from experts, or have their own models of risk that conflict with expert views [8]. This makes it difficult for health professionals to communicate the risks. It is important, therefore, that clinicians understand the patient’s perceptions of risk.

Compared with other medicine classes, patients particularly lack appreciation of the risks of the use of NSAIDs [9–11]. They are also commonly unaware of the factors that increase the risk of adverse effects such as older age, previous adverse effects and using NSAIDs in combination [12]. Even when serious events occur, patients do not necessarily associate them with their NSAID use [3].

A need exists, therefore, for more focused research into patients’ knowledge and perception of the risks associated with NSAID use. In particular, it is important to understand (i) why patients may lack knowledge about NSAID-related adverse events and (ii) why patients might be aware of the possibility of adverse events, but consider themselves as being at low risk of harm. Qualitative research methods are well-suited to exploring such issues since they allow for an in-depth, context-specific exploration of patients’ understandings, values and experiences [13] without imposing pre-defined notions of risk [14].

The aim of the present study was to explore qualitatively, in the Australian context, the perceptions of older-aged primary-care patients about the risks associated with their use of oral NSAIDs for OA. This group of patients was selected because OA is very prevalent in older people, NSAIDs are a common form of pharmacotherapy for this condition [2], a substantial proportion of OA is managed in general practice [15], and older-aged patients represent a high-risk group for adverse effects [5].

Methods

Our method was underpinned by critical realism, recognising the complexity of the phenomenon we were studying and the impossibility of reaching an absolute ‘truth’, yet assuming it was possible to generate meaningful theory about this reality [16]. Our various backgrounds in medicine, basic science, bioethics and public health shaped our aims, research questions and analysis as did our shared commitment to the judicious use of medicines.

Sampling was purposive with patients being recruited from four general practices located in Sydney, Australia. We sought maximal variation by recruiting patients from two practices that served predominately affluent, educated communities, and two that provided for predominately working-class, less well educated and proportionately more immigrant communities. Patients were included if they had been diagnosed with OA by their GP/specialist, were aged at least 65 years, were taking or had taken in the past 2 years an oral NSAID for OA, were cognitively unimpaired and were able to converse reasonably in English. We focused on oral, rather than topical, NSAIDs because these are more likely to cause systemic adverse effects and we took the view that patients are more likely to think that oral NSAIDs have side effects [3]. We included patients who were still taking oral NSAIDs and those who had ceased using them in the previous 2 years in order to determine what, if any, effect ceasing an NSAID might have on risk perception [Table 1]. Patients who met the inclusion criteria were invited by their GP to participate in the study. There was no clinical relationship between the researchers and participating patients.

In-depth, face-to-face, semi-structured interviews (45–60 min) were conducted by the same researcher (T.Y.M.) over 3 months. Participants were questioned about their
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Table 1. Participant details

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age range</td>
<td></td>
</tr>
<tr>
<td>65–69</td>
<td>4</td>
</tr>
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<td>70–79</td>
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<td>80–89</td>
<td>4</td>
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<tr>
<td>Gender</td>
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<tr>
<td>Female</td>
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</tr>
<tr>
<td>Male</td>
<td>7</td>
</tr>
<tr>
<td>Country of birth</td>
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<tr>
<td>Australia</td>
<td>9</td>
</tr>
<tr>
<td>Other (England, Scotland, Czechoslovakia, Ukraine, Netherlands)</td>
<td>6</td>
</tr>
<tr>
<td>Education</td>
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<tr>
<td>Intermediate certificate (year 10)</td>
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</tr>
<tr>
<td>Leaving certificate</td>
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<tr>
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</tr>
<tr>
<td>Occupation</td>
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<td>Professional</td>
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<tr>
<td>Trade</td>
<td>6</td>
</tr>
<tr>
<td>No history of employment</td>
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<tr>
<td>Risk factor for NSAID-related adverse effects</td>
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<tr>
<td>Gastrointestinal</td>
<td></td>
</tr>
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</tr>
<tr>
<td>Concomitant warfarin</td>
<td>1</td>
</tr>
<tr>
<td>Concomitant aspirin</td>
<td>5</td>
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<tr>
<td>Concomitant clopidogrel</td>
<td>2</td>
</tr>
<tr>
<td>Cardiovascular</td>
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<td>Prior myocardial infarction</td>
<td>2</td>
</tr>
<tr>
<td>Prior stroke</td>
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<td>7</td>
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<tr>
<td>Type 2 diabetes mellitus</td>
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</tr>
<tr>
<td>History of smoking</td>
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<tr>
<td>Renal</td>
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</tr>
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<td>Congestive heart failure</td>
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<tr>
<td>Type of NSAID used</td>
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<td>Non-selective NSAID (diclofenac, ketoprofen, peroxicam)</td>
<td>7</td>
</tr>
<tr>
<td>COX-2 selective NSAID (celecoxib, meloxicam)</td>
<td>8</td>
</tr>
</tbody>
</table>

OA and related treatments, and their sources of information for these treatments. Patients were then asked specifically about their perceptions of the effectiveness of NSAIDs, and their experience with, understanding of, and personal concern for, adverse effects. A flexible approach allowed the interviewer to follow-up issues not previously anticipated by the interviewer or considered by the patient [17]. Participants were then asked closed questions about their risk factors for specific NSAID-related adverse effects. Patients were not specifically questioned about the use of low-dose (i.e. anti-platelet doses) aspirin. Data collection was iterative with data analysis, enabling progressive refinement of the questions [18].

Interviews were digitally recorded, de-identified and transcribed verbatim and a coding tree was generated. Initial coding was based on the method of Charmaz [13] which involves line-by-line analysis; synthesis of codes into categories; focused coding using these categories and abstraction into concepts. Throughout, a process of constant comparison was employed. Existing codes, categories and concepts were constantly refined, enriched and reorganised as new codes, categories and concepts were developed. Sufficient material was analysed to ensure that categories were saturated, that is, that all codes were described by one or more existing categories. Saturation occurred after approximately 10 of the 15 interviews. TM kept detailed memos so that an audit trail could be maintained. A second researcher (K.M.W.) independently analysed focal sections of interview transcripts and met with the primary researcher to agree upon assigned themes and to ensure that the emerging ideas were grounded in the data. All researchers participated in generating concepts.

The study was approved by the Human Research Ethics Committee of the University of New South Wales (Number 09148). This work was supported, in part, by a Project Grant from the National Health and Medical Research Council [568612].

Results

Interviews were conducted with 15 patients (see Table 1). All patients appreciated the benefits of NSAIDs and there was evidence in a few interviews that patients engaged in a process of balancing these benefits against known risks of NSAIDs [1]. In most cases, however, patients did not seem to consider the specific risks of NSAIDs, and this appeared to be because they were disengaged from risk-related information and/or because they perceived themselves to be at low risk of adverse events. We identified three possible processes by which patients disengaged from information about risks and/or modulated their sense of risk, each of which precluded a considered risk-benefit analysis, which are discussed below.

Transference of responsibility

Many patients transferred to the GP the responsibility to consider any risks associated with NSAID use. They expressed great ‘trust’ or ‘faith’ in the knowledge and skills of the GP, and believed the GP was more qualified than they to undertake this responsibility. This resulted in a lack of engagement with information about NSAID-related adverse events [2].

In addition, patients assumed that the NSAID was safe because the GP had judged that to be the case [3]. The salience of trust was evident also from a counter-example of one participant who did appear to have engaged with NSAID-specific risk information. This patient’s father had died of a hospital-acquired infection. This experience made her skeptical about placing total faith in medical professionals [4].

General versus specific risk

Some patients distrusted medicines in general, their concern relating not to the specific risks of their NSAID...
but rather to a generic concept of harm of medicines. The harm was of an unknown and unspecified nature. They variously described medicines as a potentially addictive ‘bunch of chemicals’ or ‘poisons’ [5]. These patients had a very limited understanding of the adverse effects of the NSAID and modulated their sense of danger by limiting the frequency or dosage of their NSAID. This further contributed to a lack of engagement with information about the specific risks of taking a NSAID [6].

**Personal immunity**

Some patients thought that their long-term use of an NSAID without adverse effect was evidence of a lack of personal risk for toxicity with that specific NSAID. They, therefore, viewed information on medication-specific adverse effects as personally irrelevant, and dismissed the negative opinions of others. This attitude also led them to believe they were not personally at risk and did not need to monitor for adverse effects [7].

**Box 1**

1. ‘The joints tend to stiffen up and I blame the fact that I haven’t got the flexibility in the ankles anymore … and if I take the [diclofenac] it fixes it and if there weren’t side effects of [diclofenac] I would have one for breakfast every day’. (Male, aged 65)
   2. ‘… a lot of people don’t read the fine print about anything do they … they trust their faith in the prescribing GP to have read it for them and say it’s okay’. (Male, aged 71)
   3. ‘… when you trust your doctor. Well as you can imagine … he is giving it to you because it is going to do you good and I mean I do trust him. I think he is excellent’. (Female, aged 68)
   4. ‘Um, I question things now whereas I didn’t a lot earlier … Um we didn’t ask enough questions, I don’t feel of my father’s treatment and um may be yah know, we should do that more often instead of thinking doctors are gods and if they say ‘do this’ you do it’. (Female, aged 72)
   5. ‘… well there is an old saying from years ago, “what you eat today walks and talks tomorrow”. So you gotta be careful what you put into your system’. (Male, aged 85)
   6. ‘I read all the things that can happen and, but it didn’t worry me because I knew I wasn’t going to overdo them’. (Male, aged 85)
   7. ‘I appear to be one of the lucky ones that can take the [ketoprofen] without any problems, you know, but uh … people freak out and think I am going to get ulcers and all the rest of it …’. (Male, aged 69)
   8. ‘Mmm, everything he has given me I have never had any side-effects. So I must have the constitution of an ox, I think …’. (Female, aged 78)
   9. ‘Q. Did you experience side-effects with the [piroxicam]? A. I have never experienced side-effects with anything luckily …’. (Female, aged 78)

**NSAID use in older-aged primary care patients**

A few patients believed they were immune not only to adverse effects of NSAIDs but to adverse effects of medicines in general. These patients had an optimistic outlook, believing their ‘constitution’, protected them from harm. They thought of themselves as ‘lucky’ in this respect [8]. This belief of personal immunity to adverse effects of medicines possibly contributed to patients failing to attribute symptoms to NSAID use. One patient had not recognised that cessation of piroxicam by the GP was due to NSAID-induced renal impairment [9].

**Discussion**

While some patients engaged in a process of balancing risk and benefit, most patients were unaware of the specific adverse effects associated with using NSAIDs and/or viewed themselves as being at low risk of experiencing such adverse effects.

Three key themes emerged whereby patients avoided engaging with information about risk. Each of these also provided a potential explanation for their attitude to risk. First, many patients transferred the responsibility of considering any specific risks associated with NSAID use to their GP and assumed that the GP would not prescribe a medicine that was unsafe. Second, several patients were wary of all medicines and considered the risks of taking medicines in general rather than those of the NSAID. These patients also believed that by reducing the dose of medication, they would protect themselves from adverse events. Finally, there was a group of patients who believed that prolonged use of an NSAID (or other medicines) without apparent toxicity represented a lack of personal risk for adverse effects. These patients saw little reason, therefore, to engage with information on adverse effects. We view these as three ‘modes of disengagement’ from medication-specific information or three mechanisms of ‘hazard modulation’, by which patients convince themselves that they do not need to worry about medicine-related adverse events. These emergent themes should be viewed within the context that the patients had all attended their same GP for many years and had experienced positive clinical benefit.

Patients who visit more than one GP, who visit a GP on an irregular basis, who use topical (with or without oral) NSAIDs, who use only low-dose aspirin and/or who use NSAIDs on a short-term basis might have different attitudes to risk related to the use of NSAIDs. Patients might conceptualise risk differently if they do not experience benefit, or if they experience a serious adverse event. Furthermore, diverse perceptions might exist among people who use over-the-counter NSAIDs and who do not consult a GP. Finally, different themes might emerge from a selection of younger patients. Each of these considerations warrants further investigation. Nonetheless, these findings are likely to be generalisable to other elderly patients with OA as well as to other patient populations and other medications.

**Resonance with other research**

The finding that some patients engaged in a process of balancing known risks against perceived benefit has resonance
with other research into NSAID use [3, 19, 20], although our research highlights the importance of not assuming that patients are balancing known risks against known benefits. The theme of ‘transference of responsibility’ adds to a growing body of research on delegation of responsibility regarding medical decision-making by older patients to the GP [3, 21–23]. The general fear of medications which was identified, and the tendency for patients to moderate their intake without regard to specific side effects, also resonates with studies demonstrating a general fear of adverse effects and of addiction [24] and the tendency for rheumatology patients to reduce the dose and frequency of their NSAIDs [19]. To our knowledge, no previous studies have identified ‘personal immunity’ as a mode of disengagement with medication-specific risk information or as a way of modulating a sense of personal danger. This finding is, however, consistent with the concept of ‘optimism bias’, whereby people consider themselves as being at lower risk of a hazard compared with others [25] and is corroborated by the converse observation from a US national survey in which having experienced an adverse effect from one medication was (not always correctly) associated with a higher mean perception of risk across 32 prescription medicines [26].

**Clinical implications and conclusions**

Clinical implications of these findings include, first, the importance of not assuming that patients are either lacking in information or understanding (the ‘deficit model’) or are engaging in a ‘rational’ (if individualized) weighing up of known risks and benefits. Rather, clinicians need to consider the possibility that patients might be making an active (conscious or unconscious) ‘effort’ to avoid engaging with information that is available. Additionally they may be convinced that their personal risks are low. If this is the case, the clinician would then need to consider which mode(s) of disengagement/hazard modulation is being utilized, since each has its own clinical implications.

If disengagement/hazard modulation is a result of either unwarranted faith in, or mistrust of, doctors, an unrealistic fear of medicines or an unrealistic sense of personal immunity to adverse events, then it is important to make efforts to correct these excessively pessimistic or optimistic perceptions. However, the decision to trust a GP may be a well-founded act of autonomy (a phenomenon which has been recognised in other clinical settings involving older patients [3, 21–23]). A general mistrust of medications may also be well-founded, and moderation of dose may be an effective way of reducing risk, especially in the context of medicines which ameliorate symptoms rather than affect disease progression. The belief in personal immunity may also have some basis in reality. What matters clinically is that the reason(s) for disengagement/hazard modulation are explored; major misperceptions are corrected; and essential information (i.e. information needed to keep the patient safe) is imparted.

**Key points**

- Non-steroidal anti-inflammatory drugs (NSAIDs) are used commonly by older people with osteoarthritis but are associated with many adverse events.
- It is important that patients know about possible side-effects of NSAIDs so that these can be detected and managed promptly.
- This study revealed that elderly patients are not consistently aware of the risks of oral NSAIDs, or able to recognize adverse events.
- This research showed that older people actively disengage from medication-specific risk information and, in so doing, modulate their sense of danger.
- There is a need for greater recognition by clinicians of these ‘modes of disengagement’/‘hazard modulation’.

**Conflicts of interest**

None declared.

**Funding**

Funding for this work was provided in part by a National Health and Medical Research Council Program Grant (568612).

**References**


Received 6 July 2010; accepted in revised form 27 September 2010

Can maintaining cognitive function at 65 years old predict successful ageing 6 years later? The PROOF study

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Abstract

Background: preservation of cognitive abilities is required to have a good quality of life. The predictive value of cognitive functioning at 65 years old on successful ageing 6 years later is not established.